

## **REMARKS**

Claims 1, 12, 15, 33, 36, 44, 45, 47, and 48 have been amended. Claims 2, 20, 34-35, 40, 46, 49-57 have been canceled. New claims 58-62 have been added. After entry of the present amendments, claims 1, 3-19, 21-33, 36-39, 41-45, 47-48, and 58-62 are pending.

### **Section 112 Rejections**

Claims 12, 33, and 44 were rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite in that it is unclear what is meant by “as represented by the electrical analogy.” The Examiner recommended that this language be deleted from the aforementioned claims. Applicants thank the Examiner for the suggestion, and have adopted it. Claims 12, 33, and 44 have been amended to delete the phrase “as represented by the electrical analogy,” and comply with 35 U.S.C. § 112.

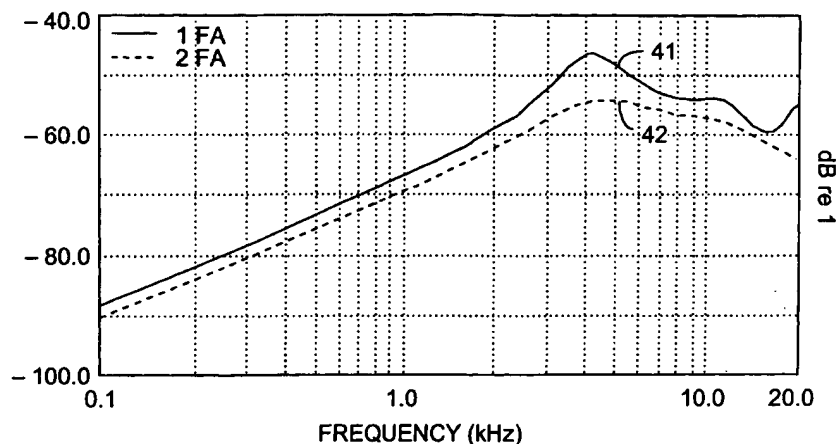
### **Section 102/103 Rejections**

Claims 2, 7, 11, 19, 20, 40, and 43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,836,732 (Johanson et al.) in view of U.S. Patent No. 6,285,771 (Killion et al.). The Office Action argues that Johanson et al. discloses a directional microphone having a 6 dB/octave low frequency roll-off and that Killion teaches use of inlet screens in the inlets of a directional microphone, thus providing an additional 6 dB/octave low frequency roll-off. Applicants respectfully traverse these rejections.

First, the Office Action states that the Applicants’ specification (page 4, lines 7-10) teaches that the use of screens by themselves would add an additional 6 dB/octave low frequency roll-off to the overall frequency response of the directional microphone. This is not true. Applicants’ specification states: “The wind noise suppression conduit presents an acoustical mass (i.e., related to acoustical inertance, and the acoustic equivalent of an electrical inductance) that, **together with the acoustical resistance of the mechanical screens in the sound inlets**, causes a low frequency roll-off of 6 dB/octave. When added to the inherent frequency roll-off of a directional microphone that is typically 6 dB/octave, the overall microphone has a low frequency roll-off at 12 dB/octave for its frequency response.” Page 4, lines 7-13. Applicants’ specification does **not** support the Examiner’s position that the use of mechanical screens by

themselves add an additional 6 dB/octave low frequency roll-off. Page 10, line 2-8 of Applicants' specification teaches an embodiment where a wind noise suppression tube in the directional microphone results in a 12 dB/octave roll-off at the low frequencies: "The inductive characteristics of a directional microphone according to the present invention brought about through the external channel 42 of FIG. 3C, the external tube 52 of FIG. 4C, or the internal tube 80 of FIG. 5B cause an increase in the slope of the curves, resulting in a 12 dB/octave roll-off at the low frequencies, instead of only the 6 dB/octave roll-off caused by the subtraction of time delayed signals (i.e., the principle of directivity in a directional microphone due to the screens)." On page 11, line 21-23, Applicants' specification again teaches: "A difference between a wind noise suppressed and a standard directional microphone is the 12 dB/octave roll-off instead of a 6 dB/octave roll-off." Thus, Applicants' specification makes it very clear that it is the wind noise suppression conduit that is primarily responsible for the **additional** 6 dB/octave low frequency roll-off. Accordingly, it is improper to assume that the use of Killion's screens alone will cause an additional 6 dB/octave roll-off.

Indeed, the frequency response curve shown in Killion *contradicts* the position set forth in the Office Action. As can be seen from FIG. 6 (reproduced below), the frequency response curve even with the acoustical resistances shows a low-frequency roll off of 6 dB, for both curves 41 and curve 42. Thus, the presence of an acoustical resistance (such as an inlet screen) does not enhance the low-frequency roll off. It may result in dampening the peak response and lowering the overall sensitivity, but the slope of both curves 41 and 42 are nearly identical and represent an approximate 6 dB/octave low-frequency roll off. Indeed, the presence of the screens in Killion seems to have almost no effect on the slope of the low-frequency roll off given that the low-frequency roll-off of a typical directional microphone is 6 dB/octave.



**FIG. 6**

The Office Action also mentions that Killion teaches that an adjusting resistor 202 can vary the low-frequency roll off between 200 Hz and 2 kHz, and therefore it would have been obvious to replace the adjusting resistor with the claimed acoustical conduit to achieve an additional 6 dB/octave low-frequency roll off. Applicants traverse this line of reasoning. Killion's adjusting resistor 202 is placed at the output of the directional microphone and constitutes an *electronic* adjustment of the low-frequency roll off. By contrast, the presence of the claimed acoustical conduit results in *acoustic* adjustment of the low-frequency roll off. Acoustic adjustment of the low-frequency roll off is desirable over the electronic adjustment of Killion for at least the following reason. The claimed invention is directed to suppression or cancellation of wind noise, which is in effect a sound pressure that is unacceptably high. Acoustic cancellation of wind noise suppresses or cancels the wind noise *before* the signal reaches the amplifier. However, the electronic approach in Killion operates upon the wind noise signal *after* the signal reaches the amplifier (note the adjusting resistor 202 is placed at the output of the directional microphone). As such, the amplifier will have to process and compensate for a high sound pressure (in other words, a high voltage) that could be too high for the amplifier to handle, resulting in undesirable clipping or distortion of the amplified signal.

Thus, even the combination of Johanson et al. with Killion fails to produce the claimed invention. The adjustable resistor 202 in Killion does not have an acoustical inertance that provides an additional 6dB/octave low frequency roll-off in addition to the 6 dB/octave low

frequency roll-off in the directional microphone without the elongated acoustical conduit as claimed in claims 1 and 36, nor does it have an acoustical mass that causes the directional microphone to have a frequency response curve with a 12 dB/octave low frequency roll-off at frequencies below about 500 Hz as claimed in claims 15 and 45. Accordingly, the independent claims are believed to be patentable over Johanson et al. and the combination of Johnason et al. in view of Killion.

Applicants traverse the rejection of claims 11, 19, and 43 for at least the same reasons provided above.

Claims 12, 33, and 44 are believed to be patentable over the applied references.

New claim 62 calls for the elongated acoustical conduit to be generally perpendicular to the front inlet tube and the back inlet tube. It is believed to be patentable over Johanson et al. for at least the reason that the passages 32, 38 are not perpendicular to the aperture 18 in Johanson et al.

### **Objected to Claims**

Claims 10, 22, 23, 28, 29, 38, and 42 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. New claims 58 and 60 include the elements of objected to claims 10 and 38 and their respective intervening claims, respectively, and an indication of allowance of those claims is requested in the next official communication.

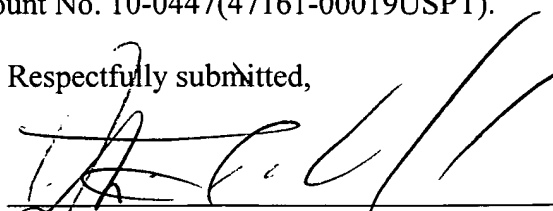
The Applicants respectfully submit that all claims are in a condition for allowance and such action is earnestly solicited.

If there are any matters which may be resolved or clarified through a telephone interview, the Examiner is respectfully requested to contact Applicants' undersigned attorney at the number indicated.

Amendment & Response to Office Action  
dated December 16, 2005

A check in the amount of \$120.00 is enclosed for the fee for the Petition for One Month Extension of Time. No additional fees are believed due. The Commissioner is authorized to charge any additional fees which may be required while this application is pending (except the issue fee) to Jenkins & Gilchrist, P.C. Deposit Account No. 10-0447(47161-00019USPT).

Respectfully submitted,



Date: April 13, 2006

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